

## ABSTRACT

5 A dynamically re-configurable multi-stroke internal combustion engine,  
comprised of programmable computer processor controlled engine components  
for decoupling the four classic strokes of an internal combustion engine and  
electronically managing engine cylinder components including such cylinder  
components as electronically controllable valves, fuel injection and air fuel  
mixture ignition, allowing additional engine cylinder unit component states and  
10 thus cylinder strokes to be independently altered or re-sequenced by computer  
control to provide alternate engine modes of operation. Some alternate engine  
modes are facilitated by addition of a compressed air storage reservoir to receive  
cylinder generated compressed air or transfer compressed air to cylinder units in  
other modes to increase engine power, efficiency or utility. Sensor input and on-  
15 demand requirements drive control logic to manage engine strokes through  
control of individual cylinder component states. Dynamic reconfiguration of  
individual component states provides re-generative engine energy modes, boost  
power modes, and mixed modes which use compressed air stored energy re-  
introduced for alternate cylinder state sequences and alternate engine modes of  
20 operation which add utility and efficiency to otherwise fixed sequence multi-  
stroke power generation in internal combustion engines.